

REMARKS

In the Office Action dated June 18, 2003, claims 1-25 were rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-36 of U.S. Patent No. 6,410,948 (Tran) in view of U.S. Patent No. 5,107,459 (Chu); and claims 1-8 and 10-25 were rejected under 35 U.S.C. § 103 over U.S. Patent No. 5,747,844 (Aoki) in view of Chu.

OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTION

A Terminal Disclaimer is submitted herewith to obviate the obvious-type double patenting rejection.

REJECTIONS UNDER 35 U.S.C. § 103

Independent claim 1 was rejected over the hypothetical combination of Aoki and Chu. The Office Action asserted that Aoki teaches memory cells having an area of about  $6F^2$ , in conjunction with bit lines being coupled to sense amplifiers in a folded bit line configuration. That assertion is inaccurate, because Aoki teaches a minimum cell area of  $6F^2$  is achieved by using an *open bit line configuration*. Aoki, 3:1-11. In fact, a stated object of the purported invention of Aoki "is to provide a dynamic semiconductor memory device having an improved layout of *open bit line configuration*." *Id.*, 2:24-26 (emphasis added). In fact, Aoki expressly notes that the minimum memory size for a folded bit line configuration is  $8F^2$ . Therefore, Aoki does not teach or suggest the *combination* of memory cells having an area of about  $6F^2$  and bit lines coupled to sense amplifiers in a *folded bit line configuration*.

Therefore, even if the combination of Aoki and Chu is proper, the asserted combination of references does not teach or suggest the claimed invention.

Moreover, Aoki expressly teaches away from the present invention. More specifically, Aoki teaches away from achieving  $6F^2$  memory cell size with a folded bit line architecture. Aoki criticizes folded bit line arrangements as being space inefficient. Aoki notes that "the layout of the conventional open bit line configuration has an advantage over the folded bit line configuration and that the cell area can be reduced to

75%." Aoki, 2:14-16. Although Aoki expressly considered the possibility of both folded and open bit line configurations in its background section, Aoki discarded the idea of a folded bit line arrangement because of its space inefficiency. Thus, Aoki teaches away from the claimed invention by suggesting that a  $6F^2$  cell size cannot be achieved using a folded bit line arrangement.

As expressly recognized by the MPEP, a prior art reference that teaches away from the claimed invention is a significant factor to be considered in determining obviousness. MPEP § 2145 at 2100-156, Rev. 1 (Feb 2003). It is improper to combine references when the references teach away from their combination. *Id.* at 2100-157. Therefore, because Aoki teaches away from the invention, there cannot be any suggestion or motivation to combine Aoki and Chu to achieve the claimed invention.

For this additional reason, the *prima facie* obvious rejection with respect to claim 1 has not been established.

Independent claims 11 and 18 are similarly allowable over the asserted combination of Aoki and Chu.

In view of the foregoing, it is respectfully submitted that all claims are in condition for allowance, which action is respectfully requested. The Commissioner is authorized to charge the Terminal Disclaimer Fee of \$110.00 and any additional fees, including extension of time fees, and/or credit any overpayment to Deposit Account No. 20-1504 (MCT.0004CIUS).

Date: \_\_\_\_\_

8-18-03

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